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BLACK HILLS NATIONAL FOREST

50th Anniversary



U. S. DEPARTMENT OF AGRICULTURE
Forest Service

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U. S. DEPARTMENT OF AGRICULTURE

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FOREST SERVICE

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Speakers and Distinguished Guests

CONTENTS

	Page
High lights in its evolution.....	1
In the beginning.....	1
How fast can a forest go?.....	3
The Black Hills forest is born.....	5
Hurdling an "attitude".....	6
"What is past is prologue!".....	7
Timber here forever.....	7
CCC—the big "assist".....	11
On the matter of grazing.....	11
"Water, water, everywhere . . .".....	12
Fun on the forests.....	13
For the fisherman.....	13
For the hunter.....	13
Three foes of a forest.....	14
Fingerprints of the fires.....	15
The wind and the weather.....	18
Billions of beetles.....	20
Old-school ranger and the new.....	21
Or, who vs. what do you know?.....	21
Then—.....	22
And now!.....	25
Some pieces of the past.....	26
Forests underground.....	32
No sheep on the forest.....	35
Chronology.....	39



BLACK HILLS NATIONAL FOREST

..} 1898—1948 {..

HIGH LIGHTS IN ITS EVOLUTION

Solitary outpost of the Rockies, the Black Hills are the first timbered highlands visible to the westward traveler across the northern prairies. In a region of expansive, treeless plains, their pine-clad slopes stand out in bold relief, conspicuous by the striking contrast with their surroundings.

To the French Verendrye brothers—first white men who saw them, in 1743—the Black Hills were “a wilderness of pine-covered mountains, hills, canyons, gulches, and ravines, and interspersed with fertile valleys and natural parks laced with clear streams . . . a verdant oasis in the midst of a barren, undulating prairie.”

In the Beginning

For a hundred years after the Verendryes, the “oasis” was discovered anew by fur traders and trappers, hunters, soldiers, and scientists who could find problems and answers to intrigue them for a score of years in the unique geology of the region. The Hills were explored in all directions, and each of the significant dates in that interim history to “modern times,” is a pointing finger in the direction of future exploitation.

This exploitation was to burgeon in three fields, dictated by the principal wealths of the resource: Timber, minerals, and agriculture, the latter including grazing. One after another, for the 30 years after Father de Smet’s “secret” about the gold find in the Hills became an open one and rapid settlement began, these three interests became dominant ones, and made their history for a time. In the end, however, natural common sense asserted itself, the economic pattern of the Hills became apparent; and the “agricultural settler,” as had been argued from the very beginning, won the Black Hills as his permanent home.

After Custer, Deadwood was first among the towns that sprang up “to dot the gold-mad Black Hills”—having been settled, respectively, on August 11, 1875, and April 26, 1876. How Ike Brown, Craven Lee, J. J. Williams, and the others who owned placer claims where the town is now located platted the site on that latter date; how streets were blazed through the brush and fire-killed dead timber “which filled the gulch almost to the mouth of Blacktail”—these details are in the history books.

According to those histories, April and May marked the beginning of placer mining in earnest, in the district. The absence of lumber was a

great drawback, and the cause of most exasperating delay. Whipsaws were busy trying to supply the demand, while numerous sawmills were reported en route. Three of these, arriving the latter part of May, soon filled all the demand for mining purposes (arrastras, sluice boxes, props, shoring, etc.), and began the making of house lumber, as the prospecting and mining in the gulches gave assurance of a large and permanent mining district.

One of these sawmills "reported en route," must have been that of E. G. Dudley. He established the first sawmill in Deadwood. His mill came from Cheyenne; and, for protection from the Indians, he organized a party of 40 men to escort it. Several times during the trip north, the party was attacked—once, even, troops had to be called from Fort Robinson to help them get through. But Deadwood needed lumber, so the mill was gotten in finally, and set up in Whitewood Gulch, now "the First Ward," near the present site of the Chicago & Northwestern roundhouse. There Dudley—a little later, with McCall—sold sawed lumber for \$40 per thousand board-feet, cut from adjacent bodies of timber.

Before fall, however, the building boom had overtaxed the sawmills—as had the city fathers. The ordinances of October 7, 1876, setting up the city government, indicate that, together with saloons, sawmills (there were two then) were being taxed at the highest rate of the town's businesses—\$25 a quarter. It is interesting to note, also, that among the nine sections of the ordinances regarding "Fire Wardens," there is no mention of forest-fire protection; although by this time, the nearby forests had definitely come into the economic pattern of their lives: Telegraph poles, for example, were even then going up.

True, forest conservation was not an unheard-of thing. That very year, 1876, there was approved by Congress a study which, among other things, called for recommendations as to "means best adapted to the preservation and renewal of forests." That was the beginning of forestry work in the Federal Government.

It is of interest to find the following editorial in the October 28, 1876, issue of the Black Hills Pioneer. The editorial was occasioned by a "miners' meeting" decision, in favor of the defendants in this case. Certain owners had taken up 320 acres of ground near Gold Run "as a ranch for agricultural and timber purposes," fenced it, and built thereon a house. Later, the proprietors of a nearby sawmill jumped the claim, and proceeded to "cut the timber in spite of the owners' protests."

"At the miners' meeting," declared the Pioneer, "the chairman elected proved to be a man whose interest was particularly against the plaintiff's—he having already secured the contract for furnishing the logs to the mill, which determined the case before it was argued, as was plainly seen by everyone present.

"The Pioneer deplores the finding of the miners' meeting in the case, regarding it as against the location of land in the Hills for agricultural

purposes. The agricultural resources of Gold Run Gulch were not deemed of sufficient import by the miners' meeting to warrant the upholding of the claim of the plaintiffs in the case. Undoubtedly a subterfuge to gain possession of valuable timber and mining claims."

Thirty years later, Gifford Pinchot was to say, ". . . the Forest Service was the first Government organization not only to assert that the small man had the right to the natural resources of the West, but actually to make it stick." In the Black Hills, however, it was the editor of the Pioneer who first saluted the "small man"—the "agricultural settler"—in his relation to the natural resources of the country.

How Fast Can a Forest Go?

"Standing timber in the entire forest of the Black Hills—saw lumber, about 1½ billion board-feet; other material, 13,360,000 cords," says an old estimate. This was in 1897, when there were 42 portable sawmills in operation in the South Dakota part of the Hills. Keep the figures in mind, and match them against what follows.

Timber was needed in Paul Bunyan-size quantities in those early days; and, because the mature forest needed to be cut, all the heavy harvesting should not be wholly condemned (fig. 1). It required lumber and lots of it to keep up with the demands of a booming, pioneer community. A number of small sawmills located throughout the region supplied early building material to the mining camps of Custer, Hill City, Lead, Deadwood, Keystone, Rockerville, Sheridan, and others. These mills culled large areas of timberland of the best trees. From Spearfish Creek to Elk Creek was one vast mining camp which consumed vast amounts of wood. A complete clearing of the forest cover from that entire region was the result. The mining methods employed then required three times the wood now used, for wood was the only fuel. Railroads, mining camps, and towns were built—practically all with wood.

The Burlington Railroad was built through the center of the Hills, from north to south, between 1885 and 1890; and the Elkhorn Railroad—now the Chicago & Northwestern—was built into Deadwood in 1890. Timber from the regions traversed by these roads was used in their construction.

Conservative estimates of drain upon the forests of the northern Black Hills during that period of construction total over 1,500,000,000 board-feet—enough for 150,000 five-room frame dwelling houses at today's figures!

But timber was plentiful, and it was lavishly used. Nearly every gulch, apparently, had its portable mill, freighted into the country at heavy expense by bull team. It started in at the most accessible place and whittled away on the nearby stands. As the forest receded before its onslaught, the little mill was moved farther up the gulch. Nobody thought of the possibility of a future yield; the sawmill owner simply took the timber as he

Department of the Interior,

General Land Office Deadwood, D. T.

Washington, D. C., Dec 15th, 1881

George W. Newbold
Galena, D. O.

Sir:—

I have rejected the proposition which you made, for reasons now written in red ink; also, for the following reasons. You deceived me in every particular concerning the time and the amount of lumber cut. You were too ignorant, and it was too impossible for you to know anything more about what you are liable for. Subsequent to the date of your proposition I have learned that you have been cutting Government timber continually since 1877, and selling to the trade.

I find that during 1879 you cut and sold at Deadwood (not after the fire) 40,000 feet; that during that year you cut

for the Glencoe mill 500,000 feet; for the Sunday mill 200,000. feet

The lumber cut for St. Made and Sturgis was not cut on the reservation nor by the order of any lawful authority. You received, just as much for the lumber sold to the Government as you received for lumber sold to other parties. There was no reduction made to the Government because the timber belonged to the Government.

There was no mention made of the 75,444 shingles sold to Sturgis and fort Meade. I have been through the woods and have seen where the timber was cut from.

Say nothing of 1877-78 you will be liable for Glencoe mill 500,000 feet.

Deadwood trade, 1879— 40,000 "

Sturgis and fort Meade 100,000 "

Col. Davy and the Galena trade 160,000 "

Glencoe mill 500,000 " 800,000 "

Market value $\frac{1}{4}$ stampage value including shingles \$1157. A proportion for any loss will be makes. If you desire to clear yourself of liability to criminal prosecution you may make the above proportion

Sincerely yours,
James Harlan
Supt. of Land Office

FIGURE 1.—Photograph of an original letter, furnished by Harry Grams, of Sturgis, S. Dak., for the Black Hills Forest's historical files. Timber trespass, in those days, was something one Special Agent of the Department of the Interior's Land Office could get excited about!

found it, selected the trees best suited to his purpose, and converted them into the most-needed commodity—mine timbers, lumber, ties, cordwood.

The diseased and limby trees, and those on the steep or rocky slopes were passed up. The stand was “high-graded,” and left encumbered with defective remnants of overmature timber and littered with debris, an invitation to forest fire. But even under the most favorable conditions of operation, the sawmill business appears not to have been very profitable. In the picturesque language of one of those pioneer lumbermen: “We got the timber for nothing, we sold our timber for nothing; and we were lucky if we just made daily wages.”

All lumber produced was consumed locally. It was not considered a commercial resource of the region, but only a “useful commodity requisite to mineral production,” like the limestone deposits, for example, which were not commercially valuable in themselves, but furnished a convenient flux in the smelting of the ores. It hardly seems strange, therefore, that the future of the forests was a matter of small moment in those days; if they lasted as long as the ores, they would have fulfilled their purpose.

It took a series of great forest fires in 1893, sweeping over the Elk, Iron, and Polo Creek drainages, to focus attention upon the need for protection of this resource. This attention crystallized in a movement for a Federal forest reservation to include all of the unappropriated public forest land in the Black Hills.

The Black Hills Forest Is Born

The Proclamation signed by President Grover Cleveland setting aside the Black Hills Forest Reserve is dated February 22, 1897. Until March of the following year, such action as might have taken place following this official signing was suspended. The suspension was then lifted, certain of the original boundary limits of the reserve were changed, and on September 19, 1898, the reserve was put under administration.

In the interim, Henry S. Graves, later to be Chief Forester, had been sent out west to survey this new Black Hills Reserve. He found “an isolated range of mountains, with a general north-south trend . . . about 120 miles long and 40 miles wide.”

“Probably no one who is at all familiar with the conditions of the Black Hills,” he reported, “will deny the urgent need of protection against fires, wasteful methods of lumbering, and timber frauds. The establishment of some system which will bring about such protection is the first and most necessary step in forest management. Forestry contemplates, however, something further than mere police patrol and enforcement of the forest laws. It has in view the establishment of forests to take the place of those which are being cut off and the eventual utilization of the forest soil to its full capacity. This cannot be brought about by merely enforcing the forest laws and keeping out fires, but requires the intelligent direction and control of lumbering with the reproduction of the forest in mind.”

Hurdling An "Attitude"

"In 1898," Pinchot observed, "the people in general knew little and cared less about forestry, and regarded the forest—like all other natural resources—as inexhaustible."

Before that date and up to the time the Forest Service took charge of the forest reserves in 1905, this was the status. Settlers and other residents of the State, under the regulations of the Secretary of the Interior, could procure timber free of charge from unoccupied, unreserved, nonmineral, public lands within the State, strictly for their own use for agriculture, mining, manufacturing, or domestic purposes, but not for sale or disposal, nor for use by other persons, nor for export from the State where procured. The cutting or removal of timber or lumber [from the reserves] to an amount exceeding the stumpage value of \$50 in any one year was not permitted except upon application to the Secretary of the Interior and after the granting of a special permit to the applicant.

During those formative years, just before Pinchot became Chief Forester and just after, "sentiment" was an important factor. The Black Hills Forests were one of Pinchot's barometers of how things were going in general. He wanted to keep his fingers on the pulse of matters there. So, in 1897, during October and November, he came out to the Hills. He had enough conferences with everybody to enable him to write to the Secretary of Agriculture, on November 5: "There is a general change of opinion in regard to the Reserve, both among ranchers and among those interested in mining. So far I have talked with no one who was not strongly in favor of preserving the timber."

One may suspect this was whistling in the dark a little, however; for in July and August 1899, just a year after he had been appointed head of the old Division of Forestry in Agriculture, he was again "in the West." Of this trip and what he learned on it he has some sharp things to say in his autobiography, *Breaking New Ground*.

Corroborating his rather emphatic and unflattering findings, is the statement of an objective writer who made a study of the period some years later. "Considerable of a mess developed in the handling of the Black Hills Reserves, and so much noise was made about it, journalistically and otherwise, that the Secretary of the Interior felt impelled in self-defense to request of the head of the Forestry Division of the Department of Agriculture, the loan of a trained forester to straighten matters out. Such a man was accordingly sent to the Black Hills by Mr. Pinchot."

This man was Edward M. Griffith, a trained expert in forestry, whose job apparently was to work out a practical plan for administration of the forests looking to the present and future conservation of the resource.

The two most "immediate" problems that faced Griffith then were fire and bark beetles. Fire was fairly well under control: Griffith reported that the season was extremely dry, but that "the forest force and the settlers were all unusually cautious, and checked the forest fires at their very

start." The other enemy to the trees, however, and far worse in the Black Hills at the time, was the tiny, grape-seed-sized beetle which had already made such vast inroads on the northern timber stands. Griffith's estimate was that 225,000,000 board-feet had already been killed by this insect. These matters, however, are chronicled elsewhere. (See p. 20.)

"What Is Past Is Prologue!"

Pinchot had said, in 1898, that the people in general knew little and cared less about forestry. By 1905, however, he could write, "the share of the forest in the life of the Nation was almost everywhere recognized."

This is evident for that part of the Nation in the Hills by 1907; for, in March of that year, one of the local papers thought well enough of it to reprint the following editorial from the Missoula Democrat:

"Perhaps some day, the opponents of the forestry service will be fair in their statements and honest in their assertions; perhaps they will, but it is not likely, for the opponents of this service are not square in their antagonism and they have not a solid fact to which they can pin their opposition; so they are compelled to base their assaults upon fancied wrongs or conjured grievances. It is a noteworthy and encouraging fact, however, that these attacks upon the forestry service attract but little attention any more; the public is learning what the forestry plan means; the doctrine of conservation is becoming accepted as an essential feature of the administration of the affairs of this country."

It is satisfying to note that, at that date, one local analysis indicated that 75 percent of the Black Hills folk, in the Supervisor's judgment, were "favorable to the Forest Service," and only 10 percent "opposed." The remainder were presumably undecided as yet.

The 75 percent were enough, however, to carry the national forests and the whole concept of their administration for conservation for all the people for all time, over the hump. The history of the forest during the next four decades is pretty much one of administrative changes, revised boundaries, and establishment of these natural resources as an integral part of the regional economy.

What is past is prologue; the forests are there today, promising for all time a continuous supply of timber.

Timber Here Forever

Since its earliest days of settlement, the Black Hills have had lumbering as an important industry in their economic pattern. All that time, the forests have yielded a constant supply of timber.

The best estimates indicate that, from 1876 to 1898, a billion and a half board-feet of Black Hills timber was used in connection with early mining operations and development of the settlements and that another half bil-

lion was cut under Forest Service regulation from 1898 through 1928. From then to now, an approximate 800 million board-feet has been cut, or a grand total of 2.8 billion board-feet.

At the same time, as a renewable resource, the forests have continued their growth, despite the ravages of fire, insects, and disease. Today there is an estimated volume of about 2.3 billion board-feet of timber in trees 10 inches and larger in diameter on the two national forests.

Formerly the entire cut was consumed locally in the mines and by the railroads. Although at least half the annual harvest was still used within 100 miles of where it was cut as late as 1925, it was as early as 1898 that Black Hills lumber began to find a market outside the State. It was the birth of an infant industry, independent of mining. Fear of timber famine, however, led the mining interests to secure an embargo upon the shipment of green cut timber from the national forests out of the State of South Dakota. Under the terms of this embargo, only timber that had been killed by fire or insects could be exported, but the trade in this low-grade material kept the industry alive until 1912, when the embargo was lifted.

Since that year, the lumber business has expanded rapidly, and a sizeable part of the annual harvest finds its way into the general lumber markets. Lumber and other construction materials, railroad ties, grain and coal-car doors, mine timbers, cordwood, fence posts, mouldings, and novelty goods are marketed over the region from the central prairie States to the Atlantic seaboard.

The Black Hills National Forest enjoys the distinction of being the first in the United States where regulated cutting was done. The first sale of stumps from a national forest was on an area in the drainage basin of Este Creek, about 4 miles southwest of the present village of Nemo. It is widely known as Case No. 1, and was made to the Homestake Mining Co. on February 28, 1898. The sale contract required that the cutting be done under the supervision of trained foresters. Cutting began at Christmastime, 1899.

A milestone along the path of Forest Service history, this sale marked the beginning of Federal forestry practice in the Black Hills and the inception of scientific forest management in the national forests in this country. Regulated cutting has been continuous on the Black Hills National Forest and on all national forests since that time.

Logging on Case No. 1 was done mainly with horses (figs. 2 and 3) and a few oxen. The timber was hauled to the fork of Jim and Este Creek, where a sawmill had been erected. Here the logs were sawed into mine props and hauled by railroad to Deadwood and Lead. In the $8\frac{1}{3}$ years of the first contract, about 15 million board-feet of timber and 5,100 cords of wood were removed. The cutting practice inaugurated there left two of the larger trees on each acre, for seed purposes. The average stand per acre left after cutting was 482 board-feet; by 1937 the stand per acre was 2,611 board-feet, an increase of 442 percent! This fact is a testament to



F-201878

FIGURE 2.—As it's done today! Loading logs on truck on Homestake sale.



F-438752

FIGURE 3.—As it was done at the time of Case No. 1, by horse logging and cross-haul method.

sustained-yield forestry. All of the cutting on this forest has been done on the sustained-yield basis—i. e., annual cut not allowed to exceed current growth in the forest—with the expectation of a material increase in the cut as the timber stands are brought to a higher state of productivity and as markets for the products are developed.

The forested area of the whole Black Hills supports stands of 2,962,-000,000 board-feet of merchantable timber, worth about \$7 per thousand on the stump. The current annual saw-timber growth amounts to 22,000,000 board feet; on all size trees, about 72,000,000 board feet. The current, annual national forests' cut is approximately 40,000,000 feet. The market value of the products from the yearly cut is about \$1,200,000.

There are, at present, about 65 sawmills in the Black Hills, all but 5 of which are of the portable or semiportable circular-saw type. There are also finishing plants remanufacturing the rough lumber from the portable mills into standard building materials, finished lumber, fine mouldings; plants producing novelties of many kinds and specialty goods; box factories; and creosoting plants.

The aggregate value of the annual timber production of the region after processing is over \$2,000,000—a fact which, alone, indicates the importance of this industry in the basic economy.

This lumber industry in its various branches gives steady employment to about 750 men and thereby contributes in a large way to the industrial prosperity of the many communities of the region. The possibility of an increase of the present volume of the annual timber cut, through more intensive forestry practices, with the promise of a continuous supply in the future, places the industry among the four most important of the Black Hills—mining, agriculture, stock raising, and lumbering.

With the exception of about 46,000 acres owned by the Homestake Mining Co., the timberland in the Black Hills is almost entirely under the scientific management of the Forest Service. The Homestake Co. is also managing its timberlands on a sustained-yield basis, so that, in effect, the entire area is now managed under standard forestry practices. Inasmuch as 140 or more years are required to produce merchantable timber in this area, seasonal variations in the amount of rainfall have no immediate effect upon the quantity of raw material available for timber operations. This makes for a more dependable source of raw-material supply for timber operations than is the case with agriculture in this region, where rainfall is limited and uncertain.

This condition gives the timber operator a thoroughly dependable, though strictly limited source of raw material, and reduces his problem to one of close utilization.

The annual cut of 40 million board-feet of logs is processed almost equally by the Homestake, Buckingham, Custer, and Warren-Lamb lumber companies and 30 to 40 small, portable or semiportable mills located in the area. The Homestake Mining Co. makes lumber and heavy timbers pri-

marily for use in their mining operations (about 12 out of 14 to 15 million board-feet a year). The Warren-Lamb Co. produces mouldings, cut and glue stock, box shooks, grain doors, and fuel. Small mills produce rough lumber, railroad ties, and grain doors.

Of the money paid to the Forest Service for standing timber and other resource uses, 25 percent is returned directly to local governing bodies; the remainder, almost sufficient to maintain the administrative expenses of the two forests, is covered back into the United States Treasury. Of the returns from the timber industry in the Black Hills, there is in excess of 80 percent returned directly into local trade channels.

The continuous cutting operations in effect on the Black Hills give employment to a permanent home-building population of wood and mill workers. Towns and villages are established which, though wholly dependent upon the forests, need never fear that their sustenance will be cut off and can plan their development on a basis of permanence and prosperity.

In this way the forests of the Black Hills are acting as a perpetual reservoir of timber products, the flow of which will never diminish, and which can supply the wood-hungry population of the surrounding plains forever.

CCC—The Big “Assist”

No review of Black Hills Forest history could well neglect the tremendous contributions of the Civilian Conservation Corps. Actually, the beginning of intensive forestry in the Black Hills was made possible largely by the work of the CCC camps.

From first to last, between 1933 and 1941, when the project was terminated, there were 17 camps on the 2 forests. The first camp was established May 18, 1933, and called Este Camp, since it was on the site of the old “Este Logging Camp,” where the lumber was sawed from Case No. 1, the famous first timber sale on a national forest.

The most extensive job done on the Black Hills was the thinning of 204,600 acres of ponderosa pine, the largest thinning project in national forests of the country. The reputation of the Black Hills as a recreation center is due largely to the work of these camps in making and improving camp and picnic grounds, shelter houses, and lakes such as Bismarck, Mitchell, Glen Erin, Major, Roubaix, Victoria, and Sheridan.

On the Matter of Grazing

Actually, the Black Hills Forests provide range for a relatively small number of livestock. Because so much of the area is covered by dense stands of timber, forage is limited. Estimated present carrying capacities call for about 25,000 cattle and 20,000 sheep. Most of the permittees whose stock use the forest range, own and reside on small to medium-sized farms located inside the forest boundaries.

For 40 years, grazing on these forests, especially in the northern division,

has been minor. Before that time, however, around 1907 and 1908, the sheep men made history. (See p. 35.)

"Water, Water, Everywhere . . ."

Preservation of water supply has always been one of the most important features of forest management. This is especially true in a section of the country such as the Black Hills where a steady and constant flow of water is a vital necessity both to the extensive mining interests within the Hills, and to the surrounding agricultural country.

Many important streams rise within the forests of the Black Hills, frequently having one or more springs as their source: The Rapid, Castle, Spearfish, Slate, Beaver, Redwater, False Bottom, Whitewood, Bear Butte, Alkali, Two Spring, Elk, French, Squaw, Box Elder, and Battle Creeks. The forests are actually a sort of vast, well-watered sponge; and, although the majority of these streams sink into the soil before or soon after entering the plains, the forests have served their function by being the means of conserving the flow of water into the two principal rivers of the watershed—the North Fork (or, more commonly, the Belle Fourche) and the South Fork of the Cheyenne.

In a recheck, 21 years after their original studies in 1888, the Geological Survey determined that Spearfish Creek "had decreased in its flow . . . 400 inches." "By reason of the removal of the timber near its source!" cried a local newspaper hotly, on March 2, 1909. "(This is) *prima facie* evidence that the forest cover must be carefully protected. That portion of western South Dakota which lies between the North and South Forks of the Cheyenne River is entirely dependent upon the Black Hills National Forest for its water supply. The protection of the forest cover is essential also for the prevention of floods, since it will be the means of absorbing the water and holding it in check, therefore assuring a uniform water supply. Spearfish Creek is a striking example of what will become of the streams unless the forest cover at their respective sources is protected."

In towns of over 2,500 population in the Black Hills, 60 percent of the domestic water comes directly from national-forest lands, and 92 percent of these lands are well forested. The total average daily consumption of domestic and industrial water from the Black Hills National Forest watersheds is 13,900,000 gallons, serving a population of 42,100 people. The national forest also provides irrigation water for 38,000 acres under cultivation, after serving hydroelectric plants with a combined capacity of 11,400 horsepower. There is an estimated \$2,312,000 total capital invested in domestic water reservoirs and other physical plants. More than 644,000 acres of Black Hills National Forest land alone in Wyoming and South Dakota are in the broad Missouri River drainage basin. There is no unusual erosion problem, or silting of streams, on the Black Hills Forests, and no flood-control reservoirs.

Fun On the Forests

Nearby, accessible, and logical areas for recreation are the national forests of the Black Hills. Thus, their use by those who love the outdoors, for whatever of a variety of reasons, is constantly increasing. About 400,000 people—local residents and tourists—visit the forests each year, spending something over a day each, as they will, since the forests are their own. The natural beauty of the scenery is intimate, friendly, and ever-changing; the forests are charged with the romance of early history; and the geology of the country is a lodestone for rock hunters and scientists.

The value of this resource, and it is so considered by forest officers, is an obvious one. A substantial amount of business, providing employment and income for many persons, subsists almost entirely from the recreation visitor's vacation-time expenditures. This segment of the public, aware of the importance of keeping the forest in good shape, are accounted an excellent "assist" in the fire-prevention campaigns that are carried on each fire season by the Forest Service.

For the Fisherman

There are 135 miles of stream and lake shores on the forests, and in the most recent year for which figures are available over 10,000 fishermen spent about 5 days apiece trying their luck on them.

For many years, in cooperation with the Fish and Wildlife Service, the Forest Service has stocked these streams with fingerlings—rainbow, steel-head, brook, black-spotted, and Loch Leven trout. Trout were first placed in these streams in the early eighties, incidentally, by R. B. Hughes, then connected with the *Rapid City Journal* office.

The wish and prophecy of Colonel Ludlow, of the Custer Expedition in 1875, has been amply borne out. Of the streams of the Black Hills in general, he said: "We were continually looking for trout in these streams. As it was, we found nothing but some small chub, and a species of sucker of perhaps a pound weight. There would be no finer trout streams in the world than these, were they once stocked."

For the Hunter

Reference in Custer's correspondence and reports showed an abundance of game in the Hills in the early days. This included grizzly bears; mountain lions (only one seen on the trip, however, and it near the head of Castle Creek); wolves—several were seen nearly every day; coyotes, chiefly on the prairie and among the foothills; beaver in great numbers within the Hills and also along the prairie streams; elk, deer, and antelope.

In August 1874, while camped near Nahant, General Custer killed a grizzly bear. It is stated that "perhaps a thousand deer were killed by members of the expedition during the brief time they were within the region, and that about 100 deer, chiefly whitetail, were killed in one day (August 9) east of Custer Peak."

It is of interest that no buffalo were seen on the entire trip, although the prairie country over which they passed had only recently been the favorite feeding ground of these animals. Antelope were always in view on the prairie and a considerable number were killed.

Few elk were actually seen (several were killed by a later party on August 11, 1877, near Nemo), but there was abundant evidence that they were here in large numbers. On July 28, 1874, the Custer Expedition observed a huge pile of weather-beaten elk horns from which they named the area Elkhorn (now Reynolds) prairie.

The question of the elk in South Dakota has been a bone of contention in some quarters for many years, ever since Custer and his men didn't actually see any, but did see a whole prairie full of their discarded horns. For some individuals the matter was something to "write home about."

On November 1, 1913, the Supervisor of the Black Hills Forest was sufficiently roused to write home about it. At any rate, he let his boss in the Denver office know that, in a sense, he felt something was at stake when his fellow supervisor, on a nearby forest in Wyoming, doubted the existence of elk in South Dakota. On that date, therefore, he wrote as follows:

" . . . The failure of the game warden to find elk at St. Onge on the particular day of his inspection does not prove positively that the elk were not in that vicinity immediately preceding or following the day of such inspection, and merely goes to prove that there was not a communication of plans between the elk and the warden of South Dakota, in order to provide for a meeting on a specified date . . .

"Information has just come to me that the Deputy Game Warden of South Dakota on October 31 saw, with his own eyes, 5 elk cross the road in front of him at but a short distance from Spearfish, which is more than 8 or 10 miles from the Willow Creek Ranger Station . . ."

A few elk are still found in the Black Hills. Game birds are scarce, according to the latest surveys. There are no bears or antelope, but a deer population of about 32,000 mule and whitetail deer. The latest figures show that 10,200 hunters bagged 6,700 deer in 38,000 days of shooting.

THREE FOES OF A FOREST

"As it appears today," reported one of the several Forest Service scientists who examined it in the early years, "the Black Hills forest is irregular and broken, and composed in many places of defective and scrubby trees . . . There are trees of every age and size, and there are large areas where there are no trees at all."

This was the general picture in 1898 and there are many areas where the description would still hold true.

There were, and there are, good reasons for this "broken condition of the forest"—the three plagues: Fires, insects, and weather.

"Forest fires," says the old report, "are directly responsible . . . destructive forest fires which have swept the Black Hills periodically for years and probably for centuries . . . The original forest, uninfluenced by fires (insects and disease), or windfalls, is found in but few places in the Black Hills."

Fingerprints of the Fires

The records of its forest fires, long before white men had even heard rumors of the Black Hills, are written sometimes in charcoal underneath layers of earth and vegetable mould. They can be read by dendrochronologists—those who, by training, have learned the speech of the "tongues in trees"—in healed-over scars, in the growth rings of standing trees, and in the stands of trees of even age which have reforested the areas that were cleared by the fires.

The oldest fire "on record" in the Black Hills occurred about 1730–40. Traces of it are found today near Rochford, Mystic (on Snake Creek), in the forests south of Custer, and in the Limestone range. The date was fixed by ancient scars on stumps in the area. There are, further, many trees between 190 and 200 years old which presumably started in the openings made by fires at that time; and there is a cross section extant of a 200-year-old tree damaged in that fire, with an entirely healed-over scar.

"In all probability," says the old fire records, "this fire, or fires about this time, swept through nearly the whole Black Hills of both South Dakota and Wyoming . . . fire scars on the old, mature timber show that the forest has been burned over repeatedly within the last two hundred years."

Probably the Hills were frequently burned after that earliest known period, but no fire of so great extent occurred again until about 1790–1800. At that time, a great fire, or series of them, burned over a large part of the range. The second-growth forest in the Limestone range and northern Hills dates from that time. The scars from this fire are found on old trees throughout the Hills, and patches of forest 130–140 years old are everywhere to be found.

Near Pactola, according to another early record, "we have been able to trace a forest fire that swept through the woods in 1800 . . . The fire originated near Deer Creek and traveled northeast." The "fingerprints" of healed-over scars, tree rings, and groups of even-aged trees are there to tell the story.

For the next large fire, there is actual evidence. The Indians tell of a time when "the entire Hills were ablaze" . . . i. e., there was an unusually great fire. The authority for this one was J. C. Sherman, of Pactola, now deceased, one of the older residents of the Hills, who talked with the Indians himself, in the earlier days, about this fire. Their information would date it 1842, and tie it up with the supposed former custom of the Indians to set lines of fire at certain times of the year to drive out game. In the northern Hills there are many trees and groups of trees around a century old which, without doubt, had their origin after this fire. In the southern Hills, the

greater amount of sapling growth is about a decade behind this; thus, the evidence indicates that there were probably two severe fires at this period, the former burning with greater severity in the northern, and the latter in the southern Hills.

A "disastrous" year was 1893, "when fires burned in the Limestone range, in the Elk Creek country, and on French and Squaw creeks." One may read, in the Black Hills Daily Times, of September 21, 1893, a most graphic description omitting none of the horrendous details, under the heading "Merciless Flames," of the "Terrible Fire in Centennial Prairie; Narrow Escape for Lead and Terry. Deadwood Nearly Surrounded by Raging Fires Fanned by a High Wind." The fire started on the south side of Terry Peak, and the destruction it wrought as described in more than three columns of impassioned prose still is remembered by many people in the Black Hills today.

One of the last of the big fires before the turn of the century is best known as the Iron Creek fire. It is well described in a report dated 1901. "The only fire of recent date," it says, "which did much damage, was the one which started near Crow Peak in the summer of 1898 and burned over approximately 20,000 acres of timber situated between Crow Peak, Iron, and Beaver Creeks. This fire swept through the forest blown by a gale of wind, and was such a hot one that it killed nearly all of the standing timber within its path. It was a very unusual fire in this respect, for usually a considerable amount of the larger timber is only badly scorched on the stump."

On April 20, 1908, occurred the famous Missouri River and Northwestern Railroad Co. fire in final settlement of which a famous Forest Service policy was established with regard to payment to the United States for forest fires started from negligence. Starting on the right-of-way of the railroad, from sparks thrown by a locomotive, the fire spread into the forest. Suit for fire damages to the forest was entered by the Government, an action previously almost unheard of.

The government was awarded damages in the amount of the value of the merchantable timber destroyed plus the cost of reforesting the burned area and protecting it for 25 years (that being the age of the young growth destroyed in this fire). This decision established a principle which is still cited in similar cases.

Although the placing of the Black Hills forests under federal administration has done much to diminish timber losses by fire, it did not automatically stop them (fig. 4). In fact, two of the most disastrous fires of all—the Rochford burn, of 21,600 acres, in 1931, and the McVey fire, of 21,857 acres, in 1939—were yet to come.

The Rochford fire—"20 miles long, and perhaps the most spectacular that ever occurred in the Hills," according to contemporary newspaper accounts—was man-caused.

The McVey fire, without doubt the worst in Black Hills recorded history, broke out on July 8 and burned for 4 intense days. It was caused by a stroke of lightning. At its peak, on the 11th, it attained a spread of 2,900 acres an hour! On the following day, there were 1,755 men on its 47 miles of established fire lines. It resulted in a tangible loss of \$376,073—including 12,285,000 board feet of saw timber; 18,838 acres of young growth timber; 17 cabins burned; and 100 head of cattle destroyed. To put it out finally, cost \$44,561. And for 3 years after this fire, "damaging floods followed" where the valuable forest cover had been burned away.



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Figure 4.—Famous Secretary of Agriculture James ("Tama Jim") Wilson (right), and Supervisor of the Black Hills E. M. Hamilton, examining an old "burn" on the Harney, or southern division of the Forest, which had been sowed to ponderosa pine 3 years before. Picture taken in 1908.

During the 38-year period, 1909–47, over 92,000 acres burned over on the Harney and Black Hills Forests, about nine-tenths of this area being on the latter division. For the northern, or Black Hills Forest, alone, 82,025 acres were burned over between 1909, when such records were first kept, and 1941—an average of 2,469 acres for each of the 34 years. In the 6-year period, 1942–47, the total area burned was 2,469 acres, for an average of 411.5 acres each year. Besides wet and dry cycles to be considered here, another important element in reducing burn is the fact that more and better fire-fighting equipment has recently been supplied to the forest and a better communication system completed.

In April of 1909, the Custer County Chronicle carried this item:

"The Forest Service men in the Black Hills are agitating for establishment of stations for fire patrol upon Harney Peak and Terry's Peak. It is a good scheme, and we hope the Government will take cognizance

of the importance of such stations and the advantage that may accrue therefrom. A lookout on each peak provided with a good field glass can view the entire Hill's territory and, with a 'phone line from each peak to the nearest established 'phone line, in case of fire they could save much valuable time in mobilizing to save property. The Chronicle deems this an imperative need and is willing to favor the project and urge its early fulfillment. We hope the boys will keep urging the matter until they gain the object desired."

The "project" was more than fulfilled. Primary lookout stations have now been erected on Harney Peak (fig. 5) and other points on the Harney National Forest. Five primary lookout stations have been constructed on the Black Hills National Forest, and the sixth one, on Terry Peak, will be built soon. In addition, five secondary lookouts and eight cooperator lookout stations are operated when conditions warrant. Airplane detection of forest fires is being employed with excellent results. Rangers and their crews are able to take quicker, more adequate action on fires as the newly installed FM radio network is developed to provide rangers, lookouts, and crews with effective, on-the-job communication.

Everyone in the Black Hills helps to keep fire out of the forest. The Ranger force is the skeleton organization that directs the work, and the local residents constitute the real protection force; but important as effective suppression is, fire prevention is of greatest importance.

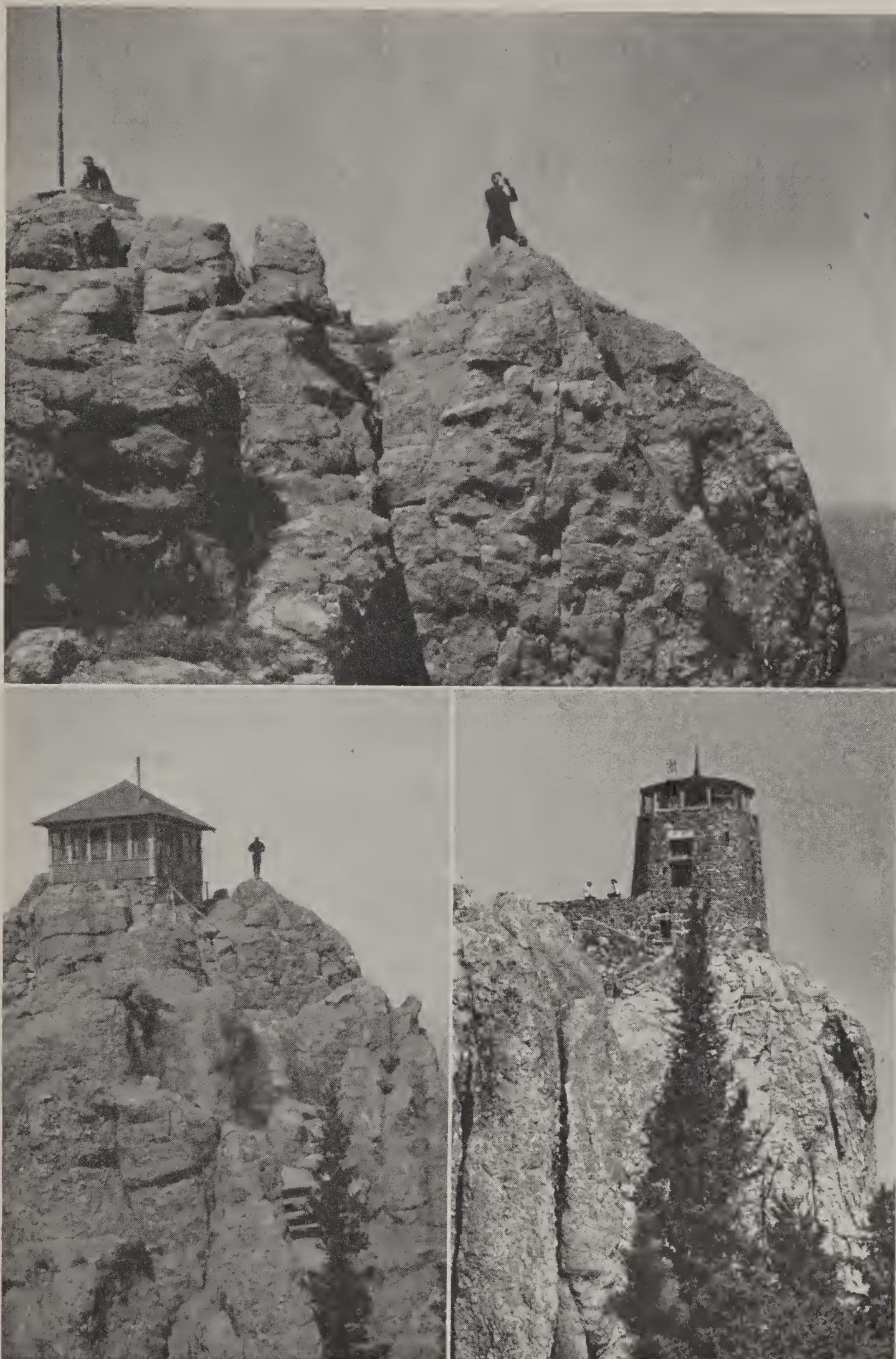
The Wind and the Weather

Less spectacular or perhaps because the records cannot be so easily read in the trees, the older accounts of cyclone, tornado, and other meteorological phenomena that occurred as destructive forces on the Black Hills are very meager. Enough are available, however, to account for at least 17½ million board feet of timber destroyed.

The first two of record are a very heavy snowfall of 1903 that downed and killed trees over a wide area; and a tornado, in March 1907, which passed Mystic, and caused "a large windfall" on the forest.

The year 1933 was one to remember. First, on April 19, came a heavy snowfall which downed and killed 1,500,000 board feet of merchantable timber. Then, on May 22, came a triple-headed disaster. Tornado, hail, and cloudburst, covering an area 7 miles long by 1 mile wide, swept across the Rapid Creek area. Over 7,000 acres suffered, and 9 million board feet of timber were destroyed—the largest single loss of the sort in the history of the forest.

On January 15, 1943, the famous chinook, unique in Black Hills annals, hit the region. Extreme variations and fluctuations in temperature—from 30° F. below zero to 55° above zero—occurred over the northern section of the Hills during an 8-day period. There was one 20-minute period in Deadwood on the twentieth when the readings went to 8° below then to



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FIGURE 5.—*Top*, As the Harney Peak Lookout was from its establishment in 1911 to 1918. The lookout manned the alidade ("fire finder") on a simple table top, while his assistant to the right scanned the horizon with a pair of good glasses. *Lower left*, Harney Peak Lookout as built in 1919; and *lower right*, rebuilt, 1940, a structure of permanence and beauty as well as of vital importance in the protection of the forest.

30° above and back to 8° below again. Severe damage was caused to a belt of trees 25 miles long by 2 miles wide between Manhattan and the Stratosphere Bowl. Fifty-thousand board feet of timber were killed on a 25-acre area on top of Piedmont Hills alone.

Billions of Beetles

Like the biblical plague of locusts, vast hordes of insects have sporadically devastated whole sections of the Black Hills forests. Far greater losses than by fire and weather combined have been occasioned by the quiet boring of billions of tiny beetles—the infamous Black Hills pine beetle.

Probably always there, because they came with the trees, the first published record of the beetles in epidemic state is dated 1895. Settlers noted signs of it first: "Pine needles are turning yellow and trees are dying in clumps in the northwestern part of the Black Hills Forest," they reported to newspapermen. Since these "clumps" turned out to be of considerable size, the inference is that the infestation had probably been building up for several years.

Writing in 1898, as of the year before, H. S. Graves stated that practically all of the trees on numerous ridges in the northwestern corner of the forests were dead or dying. The infested area extended rapidly and steadily in a general southern direction, he reported, estimating that about 3,000 acres of pine had already been "bug-killed."

During 1903–4–5, the epidemic reached its maximum destructiveness: Between 200 and 300 million board feet were destroyed annually. Altogether, in this 14-year invasion, 1895–1909 the Black Hills beetle was responsible for the killing of between 1 and 2 billion board feet of ponderosa pine in the forest.

Attempts at control by means of timber sales began early in the history of the epidemic. Sales of timber were concentrated in the beetle-infested stands, but the killing of the trees proceeded faster than they could be utilized. Control of the infestation finally came about largely through natural causes. By 1909 the peak of the epidemic was passed and it gradually subsided. By that time nearly half of the forests of the Hills had been affected, "in a fairly solid body west of the Burlington railroad, and including all but the extreme north and south ends of the great Limestone Divide."

At the moment another serious epidemic, first detected in 1946, is in progress. Surveys made in the fall of 1947 indicated that about 47,000 trees on both northern and southern divisions of the Black Hills Forests were infested. Control work was carried on in the spring of 1947; but new outbreaks were constantly occurring over a wide area. A new method of combatting the bugs consisting of a penetrating oil spray of orthodichlorobenzene is being used (fig. 6).

In the spring of 1948 a battle to the finish against the beetle was started with a fund of \$235,000 appropriated by Congress. The seriousness of the



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FIGURE 6.—One of the Jeep pressure-spray outfits and crew treating trees infested with bark beetles.

new outbreak is recognized, and all available manpower and machinery is being used in the fight on this new infestation.

OLD-SCHOOL RANGER AND THE NEW

Or, Who vs. What Do You Know?

In the early days of the forest reserves, forest rangers generally were hired on the who-do-you-know basis. Any sort of fellow who knew a Senator

or Representative, or had a friend who knew one, was on the eligible list and had a good chance for a Ranger job. The value of his chance, of course, depended entirely upon the degree of his intimacy and influence. He patrolled his district as often as not, of course, and put out small fires; but forestry was only an incident in his life, not the core (fig. 7).

Then ——

After the Forest Service took charge of the national forests in 1905 hiring of forest rangers was done on a what-do-you-know basis. The new forest ranger still did not always have a background of technical training nor, indeed, even of plain academic training. Such positions were often filled by men who passed examinations based mainly on practical experience in woodsmanship. But they had to produce results if they stayed on.

Typical of this sort of pioneer forest ranger was George C. Smith, Deputy Ranger stationed at Sundance back in 1906 and 1907 (fig. 8).

He was unschooled, technically, but he was a "zealous crusader in the cause of conservation," and could pass his examination on the basis of "practical experience in woodsmanship."

From a fast-fading carbon copy of a letter dated November 30, 1907, these facts are ascertainable about Smith. He was 34 years old when he was made Assistant Ranger on a 6-months' probationary appointment, January 20, 1906. On April 15, the following year, he was appointed Deputy Ranger. For 7 years before entering the Service, he "was engaged in Farming and improving my Homestead in the summer, and in the winter . . . worked at saw mills and such other work as could get, wages were from \$35 to \$45 per month. From 1894, to 1899, I worked almost intirely in saw mills, and lumbering camps, and before 1894, I was employed almost intirely upon a farm in Kansas."

He owned 800 acres of land inside "of the Boundry lines of the Bear Lodge National Forest"—of which forest, incidentally, he was sole administrator for a time. He had leased this land for a term of years; had no stock "except two saddle horses, which I use in my present work." As a final item in his letter, which was directed to E. M. Hamilton, then Supervisor of the Black Hills Forest, Smith indicated that he needed, as a minimum salary, \$975 annually: \$500 for support of himself and family; \$200 for feeding two horses; \$75 for a "field outfit"; \$175 for traveling expenses; and \$25 for horseshoeing.

On June 22, 1907, then-Supervisor J. F. Smith wrote to Deputy Ranger George C. Smith: "You have local charge of all the territory included in the Bear Lodge National Forest. This includes that portion of the Wyoming district just west of the Black Hills Forest, Inyan Kara Mountain, and the Bear Lodge Range."

There was authorization only for "one Deputy Ranger" for this entire area! And it was only after repeated pleas—almost threats to give up the whole business—that G. C. Butterfield came to help him, as a Forest Guard, on August 1, 1907.



FIGURE 7.—In this old picture, taken in Deadwood in 1900, is shown the earliest group of Black Hills Forest Reserve personnel, under the U. S. Department of the Interior. All but three men are identified. Left to right front row: Fred Clark, Herbert Dawson, Jacob ("Pap") Simpson, Desire La Chappelle, H. G. Hamaker (Supervisor), George Cole, Theodore Shoemaker, Harry Calhoun. Left to right, back row: Charles Pilcher, A. C. McCready, Dan Boone, Charles Dodge, George ("Dad") Lytle, -----, Edward Eastwood, -----, Tom Ocampbaugh, Fred T. Whitney, Charles Ennis, -----, Arthur L. Lynn.



FIGURE 8.—Taken on the steps of the Deadwood Post Office in 1908, this photograph, loaned to the Forest Service especially for this occasion by Frank S. Thomson, of Spearfish, S. D., shows the personnel on the Black Hills after it had become a national forest under the Department of Agriculture. Left to right, back row, standing: George C. Butterfield, _____, R. L. Peltz, L. F. Kneipp (Washington Office), August W. F. Gundlach, E. H. Long (Washington Office), H. C. Neel, William A. Poe, Fred J. Seals, Walter A. Donaldson, Homer O. Reed, W. H. Hill, Jefferson M. Dougherty, Standish M. ("Bud") Smith. Left to right, center, standing: Horatio J. Brown, Frank S. Thomson, D. B. Hilton; Seated: J. F. Conner, John Murdoch, Jr., Nelse E. Peterson, Willie J. Hall; Standing: Louis Knowles, Arthur L. Lynn, E. M. Hamilton (Supervisor). Left to right, lower row, seated: George C. Smith (of Sundance), Frank T. Smith, _____, Joseph F. Conlon, Theodore Shoemaker, Charles A. Ballinger, Clyde Leavitt (Washington Office), William Wiehe.

Between May 7 and December 3, 1907, Smith was having his troubles with his job, but nothing extraordinary. The verbatim excerpts following from letters written during that period to permittees, supervisors, and others, are not only interesting in themselves, as indicative of the forthright, self-trained sort of fellow he was, but also as reflecting the day-to-day problems that faced the Forest Ranger 40 years ago on the Black Hills National Forest.

To a permittee, advising him of new grazing regulations:

"The Secretary of Agriculture has authorized the grazing on the Bear Lodge National Forest, free of charge and without permit during the season of 1907, of all stock which have been grazing regularly within its limits in the past. This National Forest will be divided into grazing districts, persons living on the National Forest has a preferance right against all others, those living near by has a preferance right against those living outside. The name of each person, and the number of each kind of stock owned by him, and grazed on the said Forest must be sent by me, to the Forest Supervisor's office not later

than November 1st, 1907. If you will please send me by mail this data of your stock and the location you desire to graze them on next season it will be appreciated.

"In the near future there will be Rangers whose duty will be to protect the forests from fire, and look after stock and keep it on, or near by its own range. The grazing fee for the coming season has not been desided upon."

To his supervisor:

"I realy need some help here, as there is so much patented timber land, with so few Section corners, that it is hard to tell just what I am doing. I believe there will be some attemp to run in stock that has no right on the Forest, and with so much opposition to the making of these Reserves, it will be a very hard matter for one man to be very effective, but if I cant get any help, I shall shurely do the best I can."

To his supervisor:

"The people along the North and West side of the Bear Lodge Forest seem to think that this portion of the Forest is to be thrown open to settlement regardless of the Forest Service, as they tear and distroy the Boundry notices and Fire Warnings as fast as I put them up, if it continues I am going to bring some body to account for it."

To his supervisor:

"Will it be so that we can go to work on the Warren Peak telephone line soon? There is something wrong with the service from Belle Fourche to Deadwood, eather the exchange do not give us the line, or there is something elce the matter, today I could not hear a word, except when you asked where I was. This end of the line is all right, and I believe that if the Deadwood central would not listen we would have no trouble."

To his supervisor after a good holiday:

"I hereby report for duty, after taking two days annual leave Sept '20th, 21st, Sundance surely woke up from the slumbers of the dead, only the bed fast stayed at home, no body got drunk and every body had a A 1 time, it was grand for the first Crook County Fair, I wish you cauld have been here and got acquainted with the people."

To a permittee:

"I am incloseing herewith a Red Book, or The Use of The National Forests. I wish that you would read this little book, for I believe that when you have done so, you will see that the National Forests are one of the greatest moves toward the welfare of the future generations, as well as the present."

And Now!

The situation has changed with the times. The District Forest Ranger is today a technically trained man. He has advanced on merit to his present

position as administrator of a large area and supervisor of all the activities within his District (figs. 9 and 10). The business he conducts is often the largest of any in the community.

When active work in forestry began in this country, there were no schools of forestry on this side of the Atlantic. By 1912, however, according to estimates, there were about 500 men in this country with a greater or less degree of technical training in forestry. These were in addition to early-day forest rangers who began without a technical background, but through their own experience in Federal and State work had acquired considerable practical knowledge of certain phases of the subject.

Since the turn of the century, forestry has become an established profession and has taken a position of great economic importance in the United



F-25341A

FIGURE 9.—The Pactola Ranger Station in 1915, somewhat rough, but adequate.

States. Foresters today are charged with the solution of one of our major economic problems, that of putting to the best use for human welfare, the 630 million acres of land most suitable for forest purposes. Complete and thorough training is now fundamental to a career in the profession.

SOME PIECES OF THE PAST

On July 1, 1907, J. F. Smith, third Supervisor of the Forest, was getting ready to move his headquarters from the Masonic Temple to the newly erected Post Office Building in Deadwood. In a report to Chief Forester Gifford Pinchot, he wrote in part, as follows:

"All of the old records of the Reserve (. . . that is, prior to February 1, 1905) are stored away in bundles, and it is almost impossible to refer to

them quickly. We intend to file them away systematically in transfer cases."

Probably that was carefully done. The fact remains, however, that all these records have disappeared—been destroyed, perhaps. They would have included information about the first Supervisor, H. G. Hamaker whom Pinchot dealt with not too kindly; and Seth Bullock, second Supervisor, appointed by his friend, Theodore Roosevelt.

Bullock, a Canadian, had been miner, prospector, cattleman, and sheriff by turn, before he became Forest Supervisor. His life was an open book:



F-432654

FIGURE 10.—The modern ranger station lay-out at Sundance, where George C. Smith was stationed 40 years before this picture was made.

He was a fearless but friendly character, a typical product of the times, and his appointment to the position was propitious. There was need for a fellow like him at the local helm of an organization then going in troubled waters.

Bullock understood the import of his new job, to which he came in 1901. Three years later he made a talk (at Lead?) which was fully indicative of the fact, and in which he said, "The permanent industries of the Black Hills are wholly dependent upon timber and water; destroy one, and these industries will disappear; while, if both are destroyed the 'richest 100 miles square' will become a desert."

One of Bullock's men was Frank T. ("Cap") Smith, a true ranger of the pioneer type, well remembered in the Hills. Smith entered on duty September 1, 1902, and remained in charge of the Crook Mountain District of the Black Hills until his retirement April 15, 1925.

Ill health, brought on largely by overwork during the strenuous fire season of the previous year, compelled his retirement, but Cap refused to separate himself entirely from the Forest Service. He preferred to earn his retirement check. So, moving to Sturgis, on the edge of his ranger district, he imposed upon himself the duties of assistant ranger and as long as he lived acted as monitor to the succession of young rangers who came after him. He kept his Forest Service badge and marking hatchet, and earned his check by acting as a fire keyman to recruit fire fighters, and by giving the rangers many tips on the history of certain cases, or the location of section corners and land lines.

Breveted "Captain" when mustered out of service in the Spanish American War, Smith had been appointed to the Black Hills position by his good friend, Seth Bullock. Before entering the Forest Service, Smith, born in New York State in 1856, had come to the Hills in 1875 with the gold seekers following the Custer Expedition. During the years of excitement, Cap acted as scout for military expeditions, guard for wagon trains, horse wrangler, and hunter. Later, he settled down on a ranch, and made this his occupation until the outbreak of the war with Spain in 1898.

Time has a habit of retiring the earliest memories of many of the men who first worked upon the Black Hills Forest. To dispute this, however, were the recollection and keen eyes of Frank Thomson, of Spearfish, S. Dak., "trouble-shooter" ranger at Sundance, 1906-8, and for the last 30 years head of the Spearfish Live Stock Association. His letter follows:

"Congratulations upon the fiftieth year of National forestry in these Black Hills! Our family has lived within and adjacent to these Hills the entire time and more. Before this National Forest was created, we dug for gold freely and freely used its timber, its soil, its grass, its water, air, and beauty.

"My father's family was 'grown' largely from the natural resource within the forest, and my own family entirely so.

"As a boy and young man I well remember the people occupied in the sawmill work and the very ruthless waste of timber. Timber was everywhere and so plentiful that it was thought to have no value. Fires burned here and there for days without thought or care.

"Then, in 1898, when the Black Hills Forest Reserve was created, I well remember the bitter resentment of everyone in the Hills. To think that this timber was to be held out of use amazed people and stagnated business.

"Gradually, however, it was learned that the timber could be bought and used under restrictions intended to prevent waste. During the last 50 years I have seen this hot anger subside and be replaced by common sense and respect for the whole plan.

"When the Black Hills pine beetle began its destruction in this western yellow pine about 1897, my brother and I established a tie camp, and for 3 years cut bug-infested timber and sold to the Burlington

Railway Company. I saw and was a part of the great effort made by the Government and private enterprise to stop these beetles and save the infested timber to use before it rotted.

"During the 3 years I was a member of the Forest Service, I helped direct the cutting of bug-infested timber, part of the time at Nahant (where the McLaughlin Timber and Tie Company had bought a strip of timber 6 miles wide by 18 miles long running from Nahant west into Wyoming). They saved millions of feet of lumber and stopped the bugs in the entire strip.

"The Spearfish Live Stock Association, organized 30 years ago, has been in constant contact with the Forest Service, with its relations generally agreeable.

"In closing, let me say there is no program too good for these mountain Hills. They deserve a full but wise use of their natural national resources.

"To those of us who were young when this forest was created and have matured and grown old in the shade of its great western yellow pines, these are loved and sacred Hills.

"(S) FRANK THOMSON.

"SPEARFISH, S. Dak."

E. M. Hamilton, fourth Supervisor of the Black Hills National Forest, was appointed to that position on November 1, 1907, after having served in other capacities in the office for some time. The Forest Service was still on trial in parts of the West, and Hamilton's experience had taught him well the value of persistent effort as an educative force. When he had taken over the job, therefore, he wrote the following letter to all his forest officers, dated November 5, 1907:

"Gentlemen:

"Having been placed in charge of the Black Hills and Bearlodge National Forests, from this date all communications to this office should be addressed to the undersigned.

"I bespeak for myself the same hearty and cordial support that you have heretofore rendered my predecessors, to the end that unitedly working together we may make the efficiency of the administration of this Forest second to none in the Forest Service. It should be borne in mind that we are all working in the same Service and for the same ultimate object, and that this end can only be obtained by the earnestness, energy, honesty, and efficiency of the personnel comprising the force working towards these ends.

"Working together with this understanding and for the best possible administration of this Forest, I trust our relations with each other may be mutually pleasant and agreeable.

"Very sincerely yours,

"(S) E. M. HAMILTON."

When he had been informed of the ceremonies proposed for this Golden Anniversary, the fifth Supervisor of the Forest, Paul D. Kelleter—still well-remembered in Deadwood, and now retired and living at Columbia, Mo.—sat down and dredged up from a long memory “some of the reasons why I am so keenly interested in the anniversary observance”:

“The records will show that I was in the Black Hills from 1906 to 1918 and for all but the first 3 years of that period, Supervisor of the Black Hills National Forest—which at that time included the present Black Hills Forest, the Harney, and the Sundance Forest. All these added together meant quite an area for administration, particularly during the ‘Horse and Buggy’ days and prior to the present good roads.

“It was my good fortune to participate in many of the activities that laid a foundation for the current administration.

“The present Custer State Park, of which the State of South Dakota is so proud, was created as a result of an exchange project of school lands. In that connection, I served as special representative of the Secretary of Agriculture. Captain Seth Bullock, of Deadwood, and E. Brinker, Commissioner of School and Public Lands, were the other two members of the Board, which organization elected me chairman and responsible for the necessary field work and preparation of the final report of exchange. The final steps on the exchange necessitated several trips to Washington, D. C., with the final result that President Taft issued the necessary proclamation approving the exchange of lands.

“It might be of interest to you to know that the timber in ‘Case Number One’ was erroneously advertised as Norway pine. It appears the politicians placed in charge were familiar with Northern pine from the East and were misled to think that the western yellow pine of the Black Hills was the same species of tree. The official advertisement of the proposed timber sale, of which I have a copy, shows this error.

“A final basic contribution during that period of my Supervisorship was the successful litigation against the Rapid City, Black Hills, and Western Railroad, which once operated from Rapid City along Rapid Creek to Mystic. We were able, in the Federal Court, to obtain the first recognition that immature young growth had a money value. The importance of this lawsuit was evident throughout the country and subsequently formed the basis of a cash settlement by the Burlington Railroad. In addition to the cash settlement, the Railroad cleared its right-of-way through the Forest from Pringle to Deadwood, to a distance of 200 feet on each side of the right-of-way of all dead, down, and inflammable material, plus the very important item of utilizing oil burners on the passenger locomotives operating along this stretch.

“Sincerely yours,

“(S) PAUL D. KELLETER.”

George A. Duthie, sixth Supervisor of the Forest, and at present in charge of the Section of State and Community Forests, Division of Cooperative Forest Management, for the Forest Service in Washington, D. C., was a firm believer in "letting the public know." For the whole period of his incumbency, Duthie was a prolific speaker before Black Hills civic and other groups, schools, and societies, and a constant contributor to the publications read by these people. His letter indicates a continuing interest in such matters:

"The Black Hills National Forest at its very beginning came into prominence as an outstanding proving ground and demonstration area for scientific forest management. Although great strides have been made in forestry practice throughout the country during the 50 years, the Black Hills Forests still maintain their position of leadership in good forestry and are frequently referred to in professional forestry circles as an outstanding demonstration area. One reason for this record of accomplishment has been the willingness of the timber operators in the Black Hills to cooperate with the Forest Service in making the sustained yield type of forest management practical. As proof that forestry as practiced in the Black Hills has been practical is the fact that there is more timber growing there today than there was 50 years ago, in spite of the continuous cutting of forest products during that period on a scale that has made the timber industry one of the largest industries in the region.

"Sincerely yours,

"(S) GEORGE A. DUTHIE."

A review of the records of each supervisor of these forests shows administrative accomplishment to the gain of the Black Hills. Theodore Krueger, for example, and J. F. Conner, in charge, respectively, of the Black Hills and Harney during the most active CCC days, are cited especially as responsible for the opening up of the Black Hills by roads to make intensive forestry possible there in the future. Together they began, with available CCC labor, many of those practices for which the Forests are noted, such as the vast thinning of stands, and the development of recreational facilities. It was Conner who initiated and carried through the negotiations which resulted in the Sheridan dam project, the largest artificial lake in the Black Hills, 380 acres, and an outstanding engineering development.

Following these men, Clarence Averill and E. A. Snow, on the Black Hills and Harney, completed scores of projects already begun with the CCC's, and carried further the many intensive forestry practices initiated by their predecessors. As the net result of these activities a whole new or considerably revised set of timber cutting and management plans were evolved for these forests, a guide and model to those who would follow.

During the trying period of the last War, great pressures were put upon the supervisors of these Forests to cut timber beyond the limits of sustained yield

set by management plans. Demand was heavy; pressure, constant and terrific. To A. F. C. Hoffman, on the Black Hills, and to Snow and M. J. Webber, on the Harney, must go the credit of saving these forests for the future. Their job was not easy; but they did not yield to the pressures put upon them for heavy overcuts in timber; for they knew that by so doing, the future economy of the Black Hills would be disrupted, perhaps for many years.

Forest Underground

The Homestake Mining Co. has had a real "homestake" in the Black Hills National Forest, more than the 50 years since the Forest, as such, was established. As its contribution to this occasion, Harlan A. Walker, assistant general manager of the company, wrote this article to show the close relationship of the forest and the mine:

"Mining is several thousand years old, and the use of lumber and timber products in the industry goes back almost as far. Even the most primitive mining was found in most instances to require some ground support. This has been demonstrated time and again when ancient mine workings have been opened up in the Mediterranean countries, where mining was first known to be carried on in Europe.

"The ancient miners first made rock walls and pillars without mortar and these were introduced into the Western Hemisphere by the Spaniards. It was soon discovered, however, that trees made better ground support and the Phoenicians used timber in the early Spanish mines, as did the Romans. The Phoenicians made their ladders by notching out logs and the Romans used posts cut from trees with the bark peeled off as vertical ground support and to make wooden pillars. As they completed a mined-out section, they pulled down the timber behind them and caved the ground, sometimes being able in this fashion to cave more ore with less effort. The Phoenicians are credited with introducing their mining skill into Spain and, in turn, the Spaniards introduced much of theirs into the British Isles and to the Western Hemisphere.

"When Cortez conquered Montezuma early in the sixteenth century, many of Cortez's men, being expert miners, began prospecting throughout Mexico and elsewhere in Latin America and they, in turn, used the ancient Phoenician ladder, better known as a chicken ladder. I have seen many of these ladders in ancient mine workings which had first been developed by Spanish prospectors. It requires real skill and a sense of equilibrium for a miner to climb hundreds of feet up these ladders with a 100- to 150-pound load of ore on his back.

"I have mentioned this background of mining history in leading up to the use and importance of timber in mining today. Many attempts have been and are still being made to find satisfactory substitutes but, by and large, the most useful and flexible type of material

for ground support in mine workings is timber. In our own Ross Shaft, we used steel sets; but when the new Yates Shaft was sunk, it was decided to go back to timber, as steel had many drawbacks.

"Today in large mining operations, one of the heaviest items of expense is for lumber and timber. The great Anaconda Copper Mining Co., which comprises a group of mines in the Butte and other districts, requires 60 million board feet of timber, annually. Here at Homestake, on a normal production, we require 12 million feet of timber, annually. Practically all of this is processed by our own lumber and timber department from ponderosa pine cut by us in the Black Hills National Forest.

"In past years, some Douglas fir was shipped in from the Pacific Northwest for us in shaft work and in deep level timbering. The new Yates Shaft required more than 3 million board feet of timber down to its present depth of approximately 4,300 feet. This amount of timber would furnish sufficient lumber to build 280 four-room dwelling houses. In a normal year, Homestake expends more than \$300,000 for lumber and timber products in its mining operations. Very little timber is recoverable for reuse.

"The company owns extensive holdings of timber land in the northern Black Hills, and, in addition, purchases stumps from the United States Forest Service. For approximately 25 years it has been company policy to cut timber on its holdings, or those of the Forest Service, on a sustained-yield basis. Moreover, the company maintains high standards of forestry practice, not only in cutting, but, also, in protecting the forest land against erosion, and combating forest fires and insect infestation.

"The United States Forest Service for many years has strongly urged and fostered the principle of sustained-yield cutting practice so as to form the basis of a sound economy for towns and communities founded because of it. Such a program furnishes gainful employment for a community through the generations; and, when mine timber is produced, as in our case, a double advantage is gained in the local and area economy. When we saw timber at Spearfish, it is taken into Homestake Mine for ground support, thereby employing additional men underground who would not otherwise be employed by us. In fact, without timber, we could not continue to mine.

"The Spearfish sawmill normally produces 15 million feet board measure of lumber and timber per year, 12 million for Homestake consumption and the remainder for commercial outlets. Just at the present, the percentage of commercial products is much larger than normally, approximately 50 percent of the total. We are continually looking for new outlets for our commercial byproducts. Among those which we have developed within the last few years are grain doors, needed for shipping grain in box cars. During the past year, 80,000 of

these doors were produced at Spearfish and sold to the railroads. These grain doors were manufactured from 1,900,000 feet board measure of low-grade lumber.

"Approximately a year ago, the company began making snow fence from byproduct lath, and during the past year 182,000 linear feet were produced. This snow fence can also be used for corn cribs.

"Another byproduct is kindling and block wood, of which we produced 10,500 tons in the past year. Much of our smaller scrap can be made into molding; and we are supplying a considerable amount of small material for the manufacture of babies' play pens, highway department surveyors' stakes, and other uses.

"During 1947, more than 2 million pieces of lath were manufactured and sold for construction and other purposes. In addition, a large amount of all sorts of lumber was manufactured for the commercial market in which such a very large demand has been built up for house and industrial construction during the postwar years.

"The Black Hills forests are always under the threat of two great menaces: First, that of fire, and second, that of the Black Hills beetle. Through the years, the company has expended a vast amount of time, money, and effort in combating the forest fires in the Hills area. Part of this work has been done entirely at company expense, and the remainder under a cooperative agreement with the Forest Service, whereby the company is paid any out-of-pocket expense incurred in fighting forest fires.

"Much has appeared, recently, in the press regarding the seriousness of the Black Hills beetle infestation. There is just as much potential danger from it as there is from fire. About 45 years ago, more than 1½ billion board feet of timber were destroyed in the Black Hills National Forest because of such an infestation. In the fall of 1945, the Homestake Mining Co. began combating the beetle on its own lands and, later, also did considerable work for the Forest Service. More than 100,000 feet of logs were cut and made into lumber, all of the bark and outer part of the tree being burned to prevent the spread of the infestation. At the same time, about 7,000 fence posts were peeled and the bark destroyed. It is currently estimated that approximately 47,000 trees have been infested in the Black Hills and approximately 85 percent of them are in the Northern Hills Forest. The Homestake Mining Co. and the Forest Service are now undertaking a very heavy and expensive campaign to combat this new infestation.

"Our forests are one of our greatest natural assets; and, when a mature, healthy tree is destroyed by fire or by the Black Hills beetle, about 150 years' normal growing time is required to replace it with another tree 12 inches in diameter. In our office you will see a log typical of those cut and processed for industrial use. This log shows by its tree rings that it is 163 years old and was one of many cut on a

sustained-yield basis; in other words, it is being replaced by normal growth elsewhere in the forest. Such is not the case when trees are destroyed by fire or infestation.

"I wish to pay special tribute to the very fine work of the United States Forest Service in protecting our forests and the grazing lands lying within their borders. It is a real pleasure to be associated with them in our mutual problems."

No Sheep on the Forest

On a Saturday in late July, 1909, a squib appeared in the papers of the Black Hills area. Headed, "Attention, Farmers and Flockmasters," it indicated that Gifford Pinchot had finally come to Deadwood the day before. This was in answer to the sheepmen's urgent request that he come and see how matters stood for himself.

"Mr. Pinchot," said the squib, "will make a trip through the Forest along the Wyoming state line to make a personal investigation as to the grazing of sheep upon the Black Hills National Forest, a question which has aroused considerable agitation by the sheep men who are anxious to bring their sheep upon the Forest, and by the settlers, who are opposed to such introduction."

After his arrival, and so that he might see conditions firsthand, Pinchot and then-supervisor Paul D. Kelleter drove, by team, on a 4-day inspection tour of the country lying west of Deadwood into which the sheepmen wished to break. The ground in question, part of the Black Hills National Forest, was a small strip on the extreme western border of the State. Gradually, the sheepmen had acquired grazing land in that region by purchase, lease, and permit, and this National Forest land was practically the only portion they had not obtained. That section of the country was controlled by the various sheep interests that centered in Newcastle, Wyo., and owned some 40,000 head in all; and the disputed strip was desired by them as a summer grazing plot for the animals.

So that everybody—settlers and sheep men, both in Wyoming and South Dakota—might air their views, Kelleter had arranged for two open-air mass meetings (fig. 11). Forest Rangers had widely advertised them: one to be held on a Saturday evening at what was known as Commissary C, of the McLaughlin Timber & Tie Co., west of Nahant; the other, the following day, near the ranch of Ira Bacon, on the Limestone.

The question of introducing sheep upon the Forest was a momentous one, affecting as it did so many interests. On account of this importance, local Forest officers did all in their power to inform the settlers and others so they could be at the meetings and participate. The cattlemen who used the disputed piece of land for ranging their cattle, naturally opposed the entrance of the sheep; but the strongest objection came from the small settler who was cultivating his quarter-section and raised crops for a living.

The Saturday evening came, and the men began to gather. About 120 were milling around when Pinchot and Kelleter drove up. In a double line

along the area of the meeting place, the men had drawn up their teams and wagons.

Chief Forester Pinchot was introduced by the Supervisor, stood up in the back end of this wagon, sat down, and the meeting began. First one man then another rose to give his arguments pro and con. There was no hurry, no confusion: Everybody was to get to speak his piece.

Time passed, and the dusk deepened to darkness. Some of the men lighted kerosene lanterns, which they hung on the rods of their tailgates, or on the branches of nearby trees. Soon each wagon of the double line held a glowing lantern, and the meeting proceeded.



F-76899

FIGURE 11.—A group of grazing permittees, in 1909, discuss range problems.

Some of the finest oratory ever uttered was heard as the night wore on, according to Frank S. Thomson, a forest ranger who was there. The sheep-men pointed out that, inasmuch as sheep were allowed to range on other national forests, they believed it discriminating to bar them on the Black Hills. To this Pinchot replied that conditions here were vitally different. In other Forests the sheep grazed above the timber line, thus doing no harm to the growth. The cattle, he declared, ranged at large, and did not destroy the young growth.

"Here," he said, "the bark beetle has left the Forest in such a critical condition that unless the young, naturally seeded pines are protected, the future of the Forest is endangered.

"Then, too, in no other Forest is the inhabitation by small settlers so great; consequently, there is less objection to sheep which graze close and are usually destructive while browsing."

Then, when every man who wished to be heard had spoken, a ballot was taken. The vote was three to one against the admittance of sheep. Pinchot promised that he would give them his own decision, through Kelleter, as soon as possible.

There was heat in the discussion, but no disturbance. It was long after midnight when the meeting broke up. Some of the men left soon afterward, the lights swinging from their wagons as they filed away into the darkness. Some camped on the spot for the rest of the night, so that a few campfires dotted the scene.

Together with a few of the men, Kelleter and Pinchot—the latter astride a fallen log—sat up talking until dawn. Thomson sat, too, and “listened mostly,” he says.

The meeting on Sunday, at Ira Bacon’s place, was a repetition of the first. About the same number of men came, the issues discussed were similar, the ballot showed the same ratio of vote against the sheepmen.

Pinchot determined to hold with the majority, and gave this decision to Kelleter before he took the train, a day or so later, at Newcastle. Sheep were to be excluded.

The Argus-Leader, of Deadwood, on August 26, threw in with Pinchot. “Had the sheepmen,” it editorialized, “secured the privilege here, it would have been but a short time until they would have pushed the wedge further and been grazing on all available parts of the Forest.”

It was the Rapid City Journal, however, about the same date, which best summed up the decision and its full significance. Their editorial read as follows:

“While Gifford Pinchot gives several reasons, any one of which by itself would be of sufficient weight to prohibit sheep herds from using the Black Hills for grazing purposes, a prime reason is made evident in his finding. It is that the Hills territory is essentially a place for home building and no check should be put upon people who wish to settle within its confines and make a permanent home. Pinchot realizes that homes are the sustaining life of a community and become directly the sinew of the nation. To have given any part of the Hills, at this time, to the sheep herds would have been in the judgment of the Journal a grievous error.

“At the present time, there is no room in the Hills for the migratory sheep men. There is, however, plenty of room for the small farmer. The decision of Forester Pinchot will tend to encourage the people in the work now well started, and is a hint, that the government will lend its protecting arm to legitimate bucolic pursuits. The Journal believes that it voices the sentiments of the Black Hills people when it expresses to Mr. Pinchot its hearty appreciation of the farsighted looking he gave the Black Hills when he conserved them for a future people,

who are bound to wax strong and wealthy from its inexhaustible mineral and agricultural development."

This prophecy, voiced by the Journal four decades ago, has been borne out manyfold; and the Black Hills still, in all their wealth of resources, are conserved for a future people.

CHRONOLOGY

1891

Beginning of the national forest system: By act of Congress, approved March 3, the President was given power to establish forest reserves from the public domain. On March 30, President Harrison created the first reserve; before his term had expired, he set aside forest reservations totaling 13,000,000 acres. No plan of operation was passed by Congress; the reserves were simply closed areas.

1897

On February 22, President Grover Cleveland signed the Proclamation creating the Black Hills Forest Reserve, 967,680 acres.

A few months after this, Congress passed the act of June 4, outlining a system of organization and management for the public forests which made possible the opening of the reserves for use. This act, with later amendments, is the one under which the national forests are now being administered. Until 1905, the General Land Office in the Department of the Interior had charge of administration; the Division of Forestry in the Department of Agriculture gave technical advice.

1898

Administration of the Black Hills Forest Reserve began. By proclamation of President William McKinley, a 244,000-acre Wyoming section was added to the Black Hills Forest Reserve, and administration of the forest begun.

Gifford Pinchot was named head of the Forestry Division in the Department of Agriculture. It became the Bureau of Forestry in 1901.

1899

"Case No. 1," the first sale of Government timber under forestry practices in the United States was made to the Homestake Mining Co. First cutting began on Jim and Este Creek.

1905

The act of February 1 provided for the transfer of the forest reserves from the Department of the Interior to the Department of Agriculture. The present Forest Service dates from this act, since the old Bureau of Forestry was then designated the Forest Service. The latter was created to manage the forests under a plan dealing primarily with watershed protection and the development and use of all resources.

1906

The act of June 11, providing that those lands within forest reserves chiefly valuable for agriculture be listed for homestead entry, and providing for protection of mineral rights therein. Under this act a huge program

of land classification was carried out and several million acres of land withdrawn from the national-forest reserves and opened to entry under the homestead law.

1907

March 1, Bear Lodge National Forest was created, with headquarters at Sundance, Wyo.

The name "forest reserves" was changed to "national forests." The word "reserve" implied that the area was withdrawn from use, which has never been true of the national-forest areas since administration began.

1908

On July 1, Sundance National Forest was created (183,224 acres), by giving that name to the former Bear Lodge National Forest and that part of the Black Hills National Forest lying in Wyoming.

1908 and 1913

In these 2 years acts were passed which, respectively, provided that 25 percent of all money received by national forests (for grazing fees, sale of timber, or other special uses or products) should be paid to the States for the benefit of the public schools and public roads of the counties containing the national forests and that 10 percent of all forest receipts should be used for roads and trails within the national forests in the States from which the receipts come.

1911

On July 1, in the interest of more efficient administration, the Black Hills National Forest was divided by Proclamation of President Taft, into two national forests—the southern part, under Supervisor Richard P. Imes, taking the name "Harney National Forest" from the highest peak; the northern part, under Supervisor Paul D. Kelleter, the name "Black Hills National Forest."

1912

On March 4, President Taft signed a Proclamation which made it possible for the State of South Dakota to select 60,145 acres of land from the Harney and Sioux National Forests in exchange for South Dakota school lands, lying in Sections 16 and 36 along and within the boundaries of the Black Hills National Forest. (This exchange resulted in establishment of the Custer State Park.) These lands acquired in exchange became a part of the Black Hills National Forest.

1915

On July 1, the Sundance National Forest was merged with the Black Hills National Forest.

1925

On June 5, the Fort Meade Wood and Timber Reservation, established in 1881, became the Meade District of the Black Hills National Forest.

1927

As of February 15, "any lands within five miles of the exterior boundaries of the Black Hills and Harney National Forests not in Government ownership, found by the Secretary of Agriculture to be chiefly valuable for National Forest purposes, may be offered in exchange for National Forest land or timber, in the Black Hills or Harney National Forests." Lands conveyed under this act were to be parts of the adjacent national forest.

1937

So-called Hot Springs addition, of about 115,000 acres, to the Harney National Forest.

1938

On June 15, by congressional act, the Bear Lodge district of the Black Hills National Forest (in Wyoming) was enlarged by 93,055 acres. Although the boundaries of the forests have been changed since this date, this was the last addition of any great size.

The present gross area of the Harney is 723,958 acres; that of the Black Hills, 800,839. Of the former, 72 percent is Government-owned; of the latter, 83 percent. The remainder, in each case, is the property of the States and counties or is privately owned. Of the total area in both national forests, 172,211 acres are in Wyoming.

FOREST SUPERVISORS

Black Hills

H. G. Hamaker-----	1898–1901
Seth Bullock-----	1901–06
John Fremont Smith-----	1906–07
Edwin M. Hamilton-----	1908–09
Paul D. Kelleter-----	1909–18
George A. Duthie-----	1918–30
Theodore Krueger-----	1930–39
Clarence C. Averill-----	1939–41
Arthur F. C. Hoffman-----	1941–48
Clarence C. Averill-----	1948–

Harney

Richard P. Imes-----	1910–16
J. F. Conner-----	1916–17
George A. Duthie-----	1917–18
J. F. Conner-----	1918–35
E. A. Snow-----	1935–42
F. J. Poch-----	1942–44
Marion J. Webber-----	1944–

GUIDING PRINCIPLES OF NATIONAL FOREST ADMINISTRATION

The policy under which the national forests are administered by the Department of Agriculture through the Forest Service was laid down by Secretary of Agriculture James Wilson in a letter of February 1, 1905, to the Chief Forester, Gifford Pinchot:¹

"In the administration of the forest reserves it must be clearly borne in mind that all land is to be devoted to its most productive use for the permanent good of the whole people and not for the temporary benefit of individuals or companies. All the resources of forest reserves are for use, and this use must be brought about in a thoroughly prompt and businesslike manner, under such restrictions only as will insure the permanence of these resources You will see to it that the water, wood, and forage of the reserves are conserved and wisely used for the benefit of the home builder first of all, upon whom depends the best permanent use of lands and resources alike. The continued prosperity of the agricultural, lumbering, mining, and livestock interests is directly dependent upon a permanent and accessible supply of water, wood, and forage, as well as upon the present and future use of these resources under businesslike regulations, enforced with promptness, effectiveness, and common sense. In the management of each reserve local questions will be decided upon local grounds; the dominant industry will be considered first, but with as little restriction of minor industries as may be possible; sudden changes in industrial conditions will be avoided by gradual adjustment after due notice; and where conflicting interests must be reconciled, the question will always be decided from the standpoint of the greatest good of the greatest number in the long run."

¹ Of this letter, Jenks Cameron, famous conservation writer, said, a quarter of a century after it was written: "A careful perusal . . . is commended, not so much because of its terse common sense, as because of its continuous existence to the present moment as the standing general orders under which the forest work of the country has gone and still goes forward."

